UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/910,929	07/24/2001	Herve Le Floch	1807.1619	3572

5514 7590 10/04/2006

FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER	
POPHAM, JEFFREY D	

ART UNIT	PAPER NUMBER
2137	

DATE MAILED: 10/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/910,929	LE FLOCH, HERVE	
	Examiner	Art Unit	
	Jeffrey D. Popham	2137	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-8 and 10-26* is/are rejected.

7)☒ Claim(s) *2 and 9* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 July 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Remarks

Claims 1-26 are pending.

Response to Arguments

1. Applicant's arguments filed 7/10/2006 have been fully considered but they are not fully persuasive. Applicant argues, with respect to claim 4, that the number of coefficients, L, in Nakagawa, is known in advance. While this may be the case, L is not the length of the inserted message. L is the **maximum** length of the inserted message. As clearly seen in Column 13, line 10 to Column 14, line 4, "a pickup unit extracts L-piece weight coefficients in which there is a possibility that signals of the identification information are watermark-embedded," and "the CPU 1 checks whether the variable i gets to L or not, namely, whether the process in S106 is applied to all weight coefficients to which identification information may be watermark-embedded or not." The cited portion teaches that L is the maximum length of the watermark, and that the length is only determined once all L of the coefficients have been checked to see if they are watermark-embedded or not. One of the principal objects of Nakagawa is to allow arbitrarily sized identification information to be inserted into digital data, as seen in Column 8, lines 25-27: "identification information of various sizes can be processed".

Applicant's arguments regarding claim 1, however, has been considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made with Tewfik (U.S. Patent 6,442,283) and Tewfik in view of Moskowitz (U.S. Patent 5,889,868).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1, 3, 8, 10, 15, and 17-22 are rejected under 35 U.S.C. 102(e) as being anticipated by Tewfik (U.S. Patent 6,442,283).

Regarding Claim 1,

Tewfik discloses a method of inserting a message into digital data representative of physical quantities, the message including ordered symbols, the method comprising the steps of:

Segmenting the data into regions (Column 4, line 42 to Column 5, line 9); and

Associating at least one region with each symbol to be inserted, wherein, for each region into which a symbol in question is to be inserted (Column 3, lines 1-37; and Column 11, lines 50-67), the method including the steps of:

Determining a pseudo-random function, from a key which depends on an initial key and on a length of the message, the dependence on the length of the message being provided either by a dependence on a number of times the symbol has been inserted into other regions or by a dependence on a ranking of the symbol among the ordered symbols (Column 5, lines 16-65; and Column 6, line 8 to Column 8, line 46);

Modulating the symbol in question by the previously determined pseudo-random function in order to supply a pseudo-random sequence (Column 3, lines 1-37; Column 5, lines 16-65; and Column 11, lines 1-11); and

Adding the pseudo-random sequence to the region in question (Column 3, lines 1-37; Column 5, lines 16-65; and Column 11, lines 1-11).

Regarding Claim 8,

Claim 8 is a device claim that corresponds to method claim 1 and is rejected for the same reasons.

Regarding Claim 17,

Claim 17 is an apparatus claim that corresponds to method claim 1 and is rejected for the same reasons.

Regarding Claim 18,

Claim 18 is an apparatus claim that corresponds to method claim 1 and is rejected for the same reasons.

Regarding Claim 19,

Claim 19 is a storage medium containing a computer-readable program claim that corresponds to method claim 1 and is rejected for the same reasons.

Regarding Claim 22,

Claim 22 is a storage medium containing a computer-readable program claim that corresponds to method claim 1 and is rejected for the same reasons.

Regarding Claim 3,

Tewfik discloses transforming the digital data by a reversible transformation (Column 4, line 42 to Column 5, line 14).

Regarding Claim 10,

Claim 10 is a device claim that corresponds to method claim 3 and is rejected for the same reasons.

Regarding Claim 15,

Tewfik discloses that the steps of segmenting and associating and the steps of determining, modulating, and adding are performed by a microprocessor, a read-only memory including a program for processing the data, and a random-access memory including registers suitable for recording variables modified during running of the program (Column 2, lines 50-61; and Column 12, lines 28-52).

Regarding Claim 20,

Tewfik discloses that the storage medium is detachably mountable on a device for inserting a message that includes ordered symbols into digital data representative of physical quantities (Column 2, lines 50-61); and that the device performing the steps of claim 1 (see rejection of claim 1).

Regarding Claim 21,

Tewfik discloses that the storage medium is a floppy disk or a CD-ROM (Column 2, lines 50-61).

3. Claims 4, 11, 17, 18, 23, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by Cooperman (U.S. Patent 5,613,004).

Regarding Claim 4,

Cooperman discloses a method for extracting a message from digital data representative of physical quantities, the message including ordered symbols, the method comprising the steps of:

Segmenting the data into regions (Column 12, line 33 to Column 13, line 12);

Extracting a length of an inserted message, from a set of length values, based on the digital data (Column 12, line 1 to Column 13, line 12); and

Extracting the inserted message (Column 12, line 33 to Column 13, line 12).

Regarding Claim 11,

Claim 11 is a device claim that corresponds to method claim 4 and is rejected for the same reasons.

Regarding Claim 17,

Claim 17 is an apparatus claim that corresponds to method claim 4 and is rejected for the same reasons.

Regarding Claim 18,

Claim 18 is an apparatus claim that corresponds to method claim 4 and is rejected for the same reasons.

Regarding Claim 23,

Claim 23 is a storage medium containing a computer-readable program claim that corresponds to method claim 4 and is rejected for the same reasons.

Regarding Claim 26,

Claim 26 is a storage medium containing a computer-readable program claim that corresponds to method claim 4 and is rejected for the same reasons.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3, 8, 10, 15, and 17-22 rejected under 35 U.S.C. 103(a) as being unpatentable over Tewfik in view of Moskowitz (U.S. Patent 5,889,868).

Regarding Claim 1,

Tewfik discloses a method of inserting a message into digital data representative of physical quantities, the message including ordered symbols, the method comprising the steps of:

Segmenting the data into regions (Column 4, line 42 to Column 5, line 9); and

Associating at least one region with each symbol to be inserted, wherein, for each region into which a symbol in question is to be inserted (Column 3, lines 1-37; and Column 11, lines 50-67), the method including the steps of:

Determining a pseudo-random function, from a key which depends on an initial key and on a length of the message, the dependence on the length of the message being provided either by a dependence on a number of times the symbol has been inserted into other regions or by a dependence on a ranking of the symbol among the ordered symbols (Column 5, lines 16-65; and Column 6, line 8 to Column 8, line 46);

Modulating the symbol in question by the previously determined pseudo-random function in order to supply a pseudo-random sequence

(Column 3, lines 1-37; Column 5, lines 16-65; and Column 11, lines 1-11); and

Adding the pseudo-random sequence to the region in question (Column 3, lines 1-37; Column 5, lines 16-65; and Column 11, lines 1-11);

But does not explicitly disclose dynamically changing the encoding algorithm.

Moskowitz, however, discloses dynamically changing the encoding algorithm (Column 18, lines 30-56). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the algorithm varying techniques of Moskowitz into the data embedding system of Tewfik in order to make it more difficult for a malicious entity to decode the embedded information, since the attacker has to guess the order and timing of the encoding algorithms as well as the key.

Regarding Claim 8,

Claim 8 is a device claim that corresponds to method claim 1 and is rejected for the same reasons.

Regarding Claim 17,

Claim 17 is an apparatus claim that corresponds to method claim 1 and is rejected for the same reasons.

Regarding Claim 18,

Claim 18 is an apparatus claim that corresponds to method claim 1 and is rejected for the same reasons.

Regarding Claim 19,

Claim 19 is a storage medium containing a computer-readable program claim that corresponds to method claim 1 and is rejected for the same reasons.

Regarding Claim 22,

Claim 22 is a storage medium containing a computer-readable program claim that corresponds to method claim 1 and is rejected for the same reasons.

Regarding Claim 3,

Tewfik as modified by Moskowitz discloses the method of claim 1, in addition, Tewfik discloses transforming the digital data by a reversible transformation (Column 4, line 42 to Column 5, line 14).

Regarding Claim 10,

Claim 10 is a device claim that corresponds to method claim 3 and is rejected for the same reasons.

Regarding Claim 15,

Tewfik as modified by Moskowitz discloses the device of claim 8, Tewfik discloses that the steps of segmenting and associating and the steps of determining, modulating, and adding are performed by a microprocessor, a read-only memory including a program for processing the data, and a random-access memory including registers suitable for

recording variables modified during running of the program (Column 2, lines 50-61; and Column 12, lines 28-52).

Regarding Claim 20,

Tewfik as modified by Moskowitz discloses the storage medium storing a computer-readable program of claim 19, in addition, Tewfik discloses that the storage medium is detachably mountable on a device for inserting a message that includes ordered symbols into digital data representative of physical quantities (Column 2, lines 50-61); and that the device performing the steps of claim 1 (see rejection of claim 1).

Regarding Claim 21,

Tewfik as modified by Moskowitz discloses the storage medium storing a computer-readable program of claim 19, in addition, Tewfik discloses that the storage medium is a floppy disk or a CD-ROM (Column 2, lines 50-61).

5. Claims 4-7, 11-14, 17, 18, 23, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox (U.S. Patent 5,915,027) in view of Nakagawa (U.S. Patent 6,104,826).

Regarding Claim 4,

Cox discloses a method for extracting a message from digital data representative of physical quantities, the message including ordered symbols, the method comprising the steps of:

Segmenting the data into regions (Column 5, line 67 to Column 6, line 3); and

Extracting the inserted message (Column 6, lines 6-14);

But does not explicitly disclose extracting a length of the inserted message, from a set of length values, based on the digital data.

Nakagawa, however, discloses extracting a length of an inserted message, from a set of length values, based on the digital data (Column 13, line 10 to Column 14, line 4). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the watermark extraction procedure of Nakagawa into the digital watermarking system of Cox in order to prevent a third party from modifying the watermark and to keep the picture from deteriorating in quality (Column 3, lines 9-29).

Regarding Claim 11,

Claim 11 is a device claim that corresponds to method claim 4 and is rejected for the same reasons.

Regarding Claim 17,

Claim 17 is an apparatus claim that corresponds to method claim 4 and is rejected for the same reasons.

Regarding Claim 18,

Claim 18 is an apparatus claim that corresponds to method claim 4 and is rejected for the same reasons.

Regarding Claim 23,

Claim 23 is a storage medium containing a computer-readable program claim that corresponds to method claim 4 and is rejected for the same reasons.

Regarding Claim 26,

Claim 26 is a storage medium containing a computer-readable program claim that corresponds to method claim 4 and is rejected for the same reasons.

Regarding Claim 5,

Cox as modified by Nakagawa discloses the method of claim 4, in addition, Nakagawa discloses that the step of extracting the length of the inserted message includes the steps of:

Selecting the set of length values (Column 13, line 10 to Column 14, line 4);

Calculating a correlation value between the message and the digital data, for each of the length values (Column 13, line 10 to Column 14, line 4); and

Determining a local maximum among the correlation values (Column 13, line 10 to Column 14, line 4).

Regarding Claim 12,

Claim 12 is a deice claim that corresponds to method claim 5 and is rejected for the same reasons.

Regarding Claim 6,

Cox as modified by Nakagawa discloses the method of claim 4 or 5, in addition, Nakagawa discloses that the step of extracting the length of the inserted message is carried out while processing F times fewer coefficients than included in the digital data (Column 13, line 10 to Column 14, line 4).

Regarding Claim 13,

Claim 13 is a device claim that corresponds to method claim 6 and is rejected for the same reasons.

Regarding Claim 7,

Cox as modified by Nakagawa discloses the method of claim 6, in addition, Nakagawa discloses determining a total number of coefficients to be considered (Column 13, lines 35-44);

Selecting a maximum number of coefficients corresponding to the same inserted symbol, and, if the total number of coefficients to be considered has not been reached, reiterating the selecting step for another symbol (Column 13, line 45 to Column 14, line 4).

Regarding Claim 14,

Claim 14 is a device claim that corresponds to method claim 7 and is rejected for the same reasons.

6. Claims 16, 24, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Cox in view of Nakagawa, further in view of Mahe (U.S. Patent 6,459,685).

Regarding Claim 16,

Cox as modified by Nakagawa does not disclose the setup of the computer system running the program from above.

Mahe, however, discloses that the steps for segmenting and extracting are incorporated into a microprocessor; a read-only memory including a program for processing the data; and a random-access memory including registers suitable for recording variables modified during running of the program (Column 6, lines 9-19; and Figure 2). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the detachably mountable storage medium of Mahe into the digital watermarking system of Cox as modified by Nakagawa in order to obtain the properties of a detachably mountable storage medium, since the very nature of a detachably mountable storage medium, such as a CD-ROM, is that it is portable and easily switched for another.

Regarding Claim 24,

Cox as modified by Nakagawa discloses the storage medium of claim 23, in addition, Cox discloses a device for extracting a message that

includes ordered symbols from digital data representative of physical quantities comprising the steps of claim 4 (see rejection of claim 4);

But does not disclose the use of a detachably mountable storage medium.

Mahe, however, discloses the use of a detachably mountable storage medium that holds a computer-readable program that is mounted on a device for encoding data (Column 8, lines 1-6). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the detachably mountable storage medium of Mahe into the digital watermarking system of Cox as modified by Nakagawa in order to obtain the properties of a detachably mountable storage medium, since the very nature of a detachably mountable storage medium, such as a CD-ROM, is that it is portable and easily switched for another.

Regarding Claim 25,

Cox as modified by Nakagawa does not explicitly disclose that the storage medium is a floppy disk or a CD-ROM.

Mahe, however, discloses that the storage medium is a floppy disk or a CD-ROM (Column 8, lines 1-6). It would have been obvious to one of ordinary skill in the art at the time of applicant's invention to incorporate the detachably mountable storage medium of Mahe into the digital watermarking system of Cox as modified by Nakagawa in order to obtain the properties of a detachably mountable storage medium, since the very

nature of a detachably mountable storage medium, such as a CD-ROM, is that it is portable and easily switched for another.

Allowable Subject Matter

7. Claims 2 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey D. Popham whose telephone number is (571)-272-7215. The examiner can normally be reached on M-F 9:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emmanuel Moise can be reached on (571)272-3865. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeffrey D Popham
Examiner
Art Unit 2137

EMMANUEL L. MOISE
SUPERVISORY PATENT EXAMINER